

Development of Requirements Pattern Repository: Towards Supporting Requirements Reuse

ABSTRACT

Requirements Engineering (RE) covers the study of techniques to define users' needs by generating quality requirements. Nonetheless, RE tasks require a considerable amount of effort and resources due to various issues and challenging aspects. A crucial RE concern is how to effectively perform the RE tasks in order to reduce development cost. Amongst the recommended technique to achieve this, is through Requirements Reuse (RR) and one of the means to attain RR is by using requirements pattern. Reusability, in general can be viewed from *for-reuse* and *with-reuse* stages. The use of the requirements patterns could assist requirement engineers to create patterns for future reuse i.e., *for-reuse* and/or adapt in an environment i.e., *with-reuse* stage. Recent developments in RR have heightened the need for suitable environment to support these processes. In the current situation, without a requirements pattern repository, requirements engineers need to manually create, store, search, select and adapt the requirements patterns, which suit their needs. However, requirement engineers also need to be properly trained in order to make decision as to which pattern to choose, how the selection can best suit their needs and also what could be saved by using the pattern. Hence, the objectives of this work are to (1) create an environment that supports requirement engineers to create, adopt or adapt requirements patterns *for-reuse* and *with-reuse* processes; (2) support *for-reuse* process by creating requirements pattern repository; and (3) facilitate *with-reuse* process by allowing the requirements pattern adaptation from the existing patterns in the repository. In this work, we analyzed the literature on how requirements patterns are applied in both the stages and defined the required environment for the requirements pattern repository. In the end, we developed a requirements pattern repository based on generic domain and domain specific requirements patterns based on Collaborative Meeting and Appointment Scheduler Domain to demonstrate the *proof-of-concept* to allow the repository to be operational.